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ON GAS LIGHT,

Or on the Application of the Gas from Wood or Coal to economical purposes, in houses, manufactories, light-houses and for lighting cities, and comparison of the light produced by it with the Light afforded by Lamps or Candles.

AMONG the many obstacles to the success of every new enterprize, some of the most disadvantageous and the most frequently prejudicial, are the mistakes, voluntary and involuntary, committed by workmen, who are employed in any concern which is new to them, and which perhaps they neither understand nor approve; or what is still more perhaps to be feared, those alterations which workmen in general, and more especially those who pride themselves on their great ingenuity, have an irresistible propensity to make when they are employed in executing or using any thing that is not in the ordinary way of their business. No persons suffer more in this respect than men of science, men emulous of being useful in literature, and original thinkers. How many useful enterprises and inventions have been brought into disrepute by alterations *intended* by workmen and imitators as improvements! and how many useful inventions have actually sunk undeservedly into oblivion, without having been submitted to a candid consideration! They who propose improvements are commonly suspected of being influenced by common interested motives; and this suspicion, with the obstructions contrived by the malignant envy of petty minds who fancy a rival in a being of a different description, occasions little attention to be paid to such proposals by the public at large, unless the originator can triumph unassisted.

These are the chief causes which prevent the advancement and reception of valuable inventions already made; and they operate also against the production of such as might be made by ingenious men if they were not discouraged by such impediments. This melancholy truth is but too well known, and has often more effect in deterring sensible and well disposed persons from offering to the public their plans for useful improvement, than all the trouble and difficulty that would attend the execution of them. The acquisition of wealth almost totally engages the attention of indivi-

duals, and it is this that gives rise to those vain pretensions of superior or boasted excellency, and the neglect of improvement, because improvement supposes a superiority in something else; in addition to which there is a natural fear of risk, which deters men from entering upon new undertakings, of which they are not qualified to form their own judgment. To understand the nature of the production of light from *coal gas* (carbonated hydrogen) it must be known, that the aerial fluid, which is intended to serve the purpose of illumination, as stated already, is formed during the ignition of pit-coal in close vessels, according to certain chemical laws, unnecessary to be detailed here. Under such conditions the gaseous product is developed, and may be collected and preserved for any length of time, and applied to useful purposes. If pit-coal be burnt in contact with air, as is the case in a grate, by far the greatest part of this inflammable fluid escapes, and passes up the chimney, whilst another part is occasionally ignited, and exhibits the phenomena of flame and light of the fire. The beauty of the flame is much impaired by a portion of carbonaceous matter passing along with it, without suffering the process of combustion; and it is this chiefly which constitutes the *soot* collected in the neighbourhood of a flame burning under unfavourable circumstances. The theory is analogous to the action of a lamp or that of a candle. The wick of a candle being surrounded by the flame, is nearly in the situation of the pit-coal exposed to distillation, for the production of gas, in close vessels. The office of the wick is chiefly, if not solely, to convey the tallow, by capillary attraction, to the place of combustion. As it is consumed and flies off, another portion succeeds; and in this way a continued current of tallow and maintenance of flame are effected. The action of a lamp is precisely the same. The most obvious inconveniences of lamps in general arise from the fluidity of the oil, which requires a vessel adapted to contain it, and even in the best constructed lamps is more or less liable to be spilt. When the wick of a lamp, however, is once adjusted as to its length, the flame continues nearly in the same state for a very considerable time. Upon comparing a candle with a lamp, two very remarkable particulars are immediately seen. In the first place, the tallow itself will remain in the unfused state, and afford a cup or cavity to hold that portion of melted tallow which

is ready to flow into the lighted part of the wick. In the second place, the combustion, instead of being confined as in the lamp, to a certain determinate portion of the fibrous matter of the cotton of the candle, is carried, by a slow succession, through the whole length. Hence arises the greater necessity of frequently snuffing the candle, and considerable difficulties arise in the project for affording this gradual supply of tallow as it may be wanted. The brilliancy of the flame of a candle depends much on the diameter of the wick being as small as possible; but this requisite can only be best obtained in candles formed of a material that requires a higher degree of heat to fuse it, than tallow. The wick of a tallow candle must be made thicker in proportion to the great fusibility of the material, which would otherwise melt the sides of the cup, and run over in streams or gutter. Wax, being less fusible than tallow, may therefore have a smaller wick: this not only affords the advantage of a clear perfect flame, but, from the flexibility of the wick, it is disposed to turn on one side, is thus burnt into white ashes, and performs the office of snuffing.

The discovery of the gaseous fluid which constitutes the substance of the gas light, it must be confessed, appears not to be of modern date; for in the Philosophical Transactions of the Royal Society, v. XLI. so long ago as the year 1739, is recorded a paper, exhibiting an account of some experiments made by the late Dr. James Clayton, from which it appears that the nature of this inflammable fluid was then already known. Dr. Clayton having distilled pit-coal, obtained, as products of the process, fire and an aqueous fluid, afterwards a black oil, and lastly an inflammable gas, which he caught in bladders; and by pricking the bladders he was enabled to inflame the gas at pleasure.

It is further known, that in the beginning of the last century, Dr. Hales, (*Veget. Statics*, vol. 1.) on submitting pit-coal to a chemical examination, found, that during the ignition of this fossil in close vessels, nearly one third of the coal become volatilized in the form of an inflammable vapour.

Hence the discovery of this gaseous product can no longer be claimed by any person now living. In the year 1767, the Bishop of Llandaff (*Watson's Chemical Essay*, vol. 11.) examined the nature of the vapour and gaseous products evolved during the distillation of pit-coal. This learned philosopher noticed, that the volatile product is not only inflammable as it issues from the distillatory vessel, but that it also retained its inflammability after having been made to pass through water, and suffered to ascend through two high curved tubes. The solid matters obtained by this venerable prelate, were, an aqueous ammoniacal fluid, a tenacious oil resembling viscid tar, and a spongy coal or coke.

The first discovery of the use of gas from pit-coal has lately been claimed by Mr. Murdoch. This gentleman tells us, that he made some experiments on the nature of this gas during the year 1792, when he resided at Redruth, in Cornwall; (*Philosoph. Trans.* 1808, P. 1. p. 130.) that he was struck with the prodigious quantity of inflammable gaseous

products which a number of vegetable and mineral substances yielded, when heated in closed vessels; and that he instituted a series of experiments, with a view to learn the relative expense at which light might be procured, in order to compare it with an equal quantity of light obtained in the ordinary way from lamps or candles. With these experiments however, *nobody* was made acquainted—at least they were not laid before the public until they were noticed by Mr. Henry, of Manchester, in the year 1805, in a paper inserted in the *Monthly Magazine*. The public, therefore, was in possession of the discovery of an inflammable gas long before they heard of Mr. Murdoch's claim; and the community are surely *most indebted to those who took the pains to disseminate so useful a discovery, and made it generally known*. On this ground Mr. Winsor, of Pall-Mall, London, has certainly the first claim to public acknowledgment in England, with regard to the beneficial effects of this gas, as connected with the purposes of illumination. This gentleman demonstrated, in the years 1803 and 1804, to a respectable audience at the Lyceum, in London, for several successive months, that the gas from coal might be applied with great advantage on a large scale, as well as for domestic purposes. His display of gas lights took place above two years before Mr. Murdoch's right of priority was heard of. In stating these facts, we do not mean to say that Mr. Murdoch derived the hint of applying the coal gas from the previous exhibition of Mr. Winsor's, because it is quite within the bounds of probability that the ideas of Mr. Murdoch may have arisen totally independent of all acquaintance with Mr. Winsor's; nor would we willingly wound the feelings of any individual—our object is a mere statement of facts. But we are both inclined and prepared to say, that the honour of proving the absolute certainty, or the real application of this gas from coal to actual use, is due in that country to Mr. Winsor. Mr. Murdoch may perhaps possess more learning, but Mr. Winsor has certainly, in this matter, shown more genius and judgment. The claims of invention, or the determination of the right of priority, concerns the public only, so far as the honour and estimation of any useful discovery conferred on the inventor, may induce other individuals to devote their talents to similar pursuits; by means of which, more discoveries may be made, and the subject of human invention become extended, and rendered more useful to the public. For as to the mere benefits which mankind may derive from any particular discovery, considered abstractedly, or solely by itself, they are certainly much more indebted to the person who first applied the discovery to actual practice, than to him who first made it; and it is the person who brings forward a useful matter into practice, or who makes individuals thoroughly understand its importance and real value, that is entitled to the respect and protection of the public, because, without his labours, the benefits of the mere discovery might have been lost to the public. Other individuals in London besides Mr. Winsor, are also entitled

to praise. Mr. Lardner, in Piccadilly, has claims to public thanks, prior to Mr. Murdoch; for his warehouse, near Albany-buildings, was publicly lighted up by means of coal gas, in the most splendid manner, upwards of six months before Mr. Murdoch's claim of invention appeared: and as Mr. Lardner is the first who set the example of applying the gas from coal to common and profitable purposes in the small way, he is perhaps not the least entitled to acknowledgment and general praise. In France, the application of gas light to economical purposes, was pointed out long before it was publicly introduced into England. M. Le Bon had a house fitted up in Paris, in the winter of 1801, so as to be entirely illuminated by gas light, which was seen by thousands with admiration; and had a *brevet d'invention* (patent) granted him by the French Government, for the art of producing light from wood, ignited in close vessels. In the year 1798 Mr. Murdoch indeed constructed an apparatus at the manufactory of Messrs. Bolton and Watt, of Soho, near Birmingham, with an intent to apply the gas from pit-coal, for the purpose of illumination on a large scale. The principal buildings at the Soho manufactory were lighted up some time by means of this gas, and various experiments were made with a view to free it of its peculiar odour, and to obtain the gas in as pure a state as possible. These experiments, as Mr. Murdoch informs us, were continued, with some interruptions, until the peace of 1802, when a display of the gas was made at the Soho manufactory on that occasion. Mr. Winsor, it must, however, be stated, has, from the year 1806, up to the present day, illuminated not only Pall-Mall, but his offices and dwelling-house, in the most brilliant manner.

In the year 1806, Mr. Heard took out a patent for obtaining the inflammable gas from pit-coal in such a state, that it may be burned without producing any disagreeable odour. This gentleman was formerly in the service of Mr. Winsor, and from whom he received as it appears, his knowledge concerning the nature of the gas light. The objects of his patent are twofold: in the one, the coals are stratified with quicklime in the vessel in which they are distilled; and in the other the gas produced is made to pass over lime contained in a heated tube: after the gas has been conducted into a refrigeratory, and all its condensible parts are deposited, it is applied for illumination in the usual manner. Mr. Heard persuades himself that he discovered sulphur in most of the coals, and he imagines that the disagreeable odour produced by the unrefined gas arises from the sulphurous acid gas thus produced during combustion: he therefore substitutes lime, with a view to convert the sulphur either to a sulphuret or hydrosulphuret of lime. We have no doubt that the means recommended by Mr. Heard must have the effect of depriving the gas of its odour, if it is carelessly prepared; and particularly if that odour as Mr. Heard considers it, is derived from the production of sulphurous acid gas, generated by the combustion of the sulphur from coal. From some experiments which we have made, by causing the gas

to burn a considerable time in a receiver, we believe him to be mistaken: for not a vestige of sulphurous acid gas could be discovered in the generated fluid, by means of muriatic water and other chemical tests; and although we may allow that the sulphurous acid gas might cause part of the odour, sometimes perceivable during the combustion of an impure gas; yet we cannot help strongly suspecting, that even a greater part of the odour in that case arises from a portion of undecomposed gas escaping the process of combustion. As a proof of this, we need only set fire to a stream of gas thoroughly purified, from a small orifice or pipe, so as to produce a flame not much larger than that afforded by an ordinary candle: in that case the combustion is absolutely *unaccompanied by any odour*; but if the gas be made to burn from a large orifice, an odour is always perceptible, which is more predominant as the gas is impure. We must therefore absolutely look to the purification of the gas in the first instant of its production, and which no doubt may easily be accomplished by repeated washing in water, assisted by a columnar pressure, or by other means well known to the chemical philosopher. Many other attempts have been made in that country, to derive advantage from the different constituent parts of coal, but they are too obscure to merit particular attention. Let us now briefly consider the general nature of the light, obtained from coal gas, when compared with the light obtained from candles or lamps, with a view to form some notions of the advantages which may fairly be expected from its application to the common purposes of life. In doing this, we shall confine ourselves to the labours of Mr. Murdoch and Mr. Accum; the former being employed to construct an apparatus for lighting up one of the largest cotton-manufactories in this kingdom, and latter being called upon to give evidence before the house of commons with regard to the general nature of the subject. The labours of Mr. Murdoch may be seen in the *Philosophical Transactions*, 1808, and those of Mr. Accum, in the *Remarks upon the Bill for incorporating the gas light and coke company*, 1809. The facts which relate to the labours of Mr. Murdoch are, the application of gas light, to light up the cotton manufactory of Messrs. Phillips and Lee at Manchester. To accomplish this, the coal is distilled in large retorts, and the carbonated hydrogen gas is conveyed into large gasometers, where it is washed and purified, and whence it is transported by tubes and distributed into the manufactory. The tubes thus employed, form a total length of several miles. From this fact we therefore learn, that the gas actually flows spontaneously, through various circulations, to the distance of at least 2 miles; and there is, therefore, reason to believe it will flow farther. To burn the gas, the tubes which convey it are provided with conical pieces perforated and furnished with stop-cocks. The gas, as it issues through these perforations, is set fire to, and the supply of it is regulated by this stop-cock. There are 271 burners on the principle of Argand's lamp, each of which

gives a light equal, in intensity, to four mould candles, of six to the pound; and 633 burners (similar to those in the range of gas-lamps in Pall-Mall) called cockspurs, of which the light is equal to 2, 1-4 of the same candles, so that the whole of the light is equal to 2500 candles, six to the lb., and each of which consumes four-tenths of an ounce, or 175 grains of tallow, in an hour. The quantity of gas required for this number of burners, is 1250 cubic feet in an hour. In some mills, Mr. Murdoch observes, where there is overwork, the light will, on an average of the whole year, be required for three hours, and in a few, where night-work is still used, twelve hours; but in the manufactory under consideration, the yearly average is only two hours a-day, or 2500 cubic feet of gas. The quantity of cannel coal to produce this bulk of gas is 7 cwt. which costs eight shillings. From this statement it becomes therefore obvious, that the expence of the lights used in this manufactory, may be stated thus:

Cost of 110 tons of coal at 22s. 6d. is	-	-	£125
Cost of 40 tons of common coal to heat the retorts at 10s. is	-	-	20
			145
Interest of capital, and wear and tear of the apparatus, which is, however, rated higher than necessary	550		
Attendance, the same as when candles are used, and therefore need not be stated	0		
			695
Deduct the value of 70 tons of coke at 1s. 4d. per cwt.	93		
			602
Yearly expence	-	-	602

The amount of the expence of candles to give the same light would be, at 1s. per lb. nearly 2000

If this light were required for three hours a-day, the advantage would be still greater, as the interest of capital, and the wear and tear, remain nearly as before; so that the yearly expence will not be more than £650, while that of tallow would amount to £3000. If the lights were required for more than three hours, an increase of some parts of the apparatus would be required. If the comparison is made with oil, the advantages would, of course be less. The burners of the gas are absolutely free from odour, the light is peculiarly soft and clear, and of almost unvarying intensity. It is also free from sparks, and it produces no soot. Such is the statement of Mr. Murdoch with regard to the beneficial applications of the gas light, and for which this well known philosopher has received, from the royal society, the gold medal. It is obvious that in this statement the light only was sought, and that no account has been taken of the collateral products that are obtained during the distillation of pit-coal in close vessels. These are chiefly, tar diluted with an essential oil, perfectly adapted for painting, varnishing, &c., and an ammoniacal liquor containing a considerable portion of carbonate of ammonia: the latter is already

sought for, and actually used by the dyer and calico-printer. The tar has been found superior to vegetable tar; and when inspissated, furnished either excellent pitch, or asphaltum, according to the degree of inspissation. These articles may thus be produced at a cheap rate.

The following is the CALCULATION referred to, and shows the value of the products from one chaldron of coals, in twenty four hours, as stated by Mr. Accum

FIRST CALCULATION.

1st. The quantity of measured light produced from a chaldron of coals, is equal to 3981 tallow candles, of twelve to the pound, at 1s. per lb.			
(burning five hours)	-	-	16 11 0
2nd. One chaldron and a half of coke, at 30s. per chaldron	-	-	2 5 0
3rd. Sixty pounds of pitch, at 25s. per cwt.	-	-	0 12 6
4th. Thirty pounds or three gallons of essential oil for painting, at 8s. per gallon	-	-	1 4 0
5th. 180lbs. or eighteen gallons of ammoniacal liquor, at 1s. per gallon	-	-	0 18 0
			21 10 6
Deduct, as below, for expence	-	-	3 5 0
Cost of coal	-	-	2 5 0
Labour for two men	-	-	0 10 0
Wear and tear for 24 hours	-	-	0 5 0
Carbonising fuel for refuse coke	-	-	0 5 0
			18 5 6

SECOND CALCULATION, COMPARING IT WITH OIL LAMPS.

1st. The quantity of light equal to 2,100 parish-lamps, at 3-4 d. each, is (burning for eleven hours)	6 11 3
2nd. Coke, as before	2 5 0
3rd. Pitch, ditto	0 12 6
4th. Essential oil, ditto	1 4 0
5th. Ammoniacal liquor, ditto	0 18 0
	11 10 9
Deduct costs as above	3 5 0
	8 5 9

ON POPPY OIL.

(Continued from page 114.)

In the year 1798, the Society established at Amsterdam for the encouragement of agriculture, being informed that the oil of poppies was cultivated in several parts of *France*, *Flanders*, and *Brabant*, thought it an object of sufficient importance to make more particular inquiry; and they learned from indubitable authority, not only that it was generally used in the place of olive oil, but that several thousand casks of it were exported annually, a large quantity of which was imported into *Holland*, and sold under the name of olive

oil, or mixed with it in considerable abundance; and they appealed to several merchants who were members of the Society for the truth of this assertion, without being contradicted.

These facts induced the Society to propose three premiums, consisting of a *silver medal* and *ten ducats* each, which were divided into the three following classes.

The *first* to the husbandman who should sow not less than half an acre of a *clayey* soil with poppy seed; the *second* on sandy ground; and the *third* on turf or peat land.

They also offered to the person who shall have cultivated the largest quantity of ground, on the two first species of soil, in the most masterly and advantageous manner, a *gold medal*, value *fifty ducats*, or that sum in money, in lieu of the above premiums.

The candidates were to give an accurate statement of the quantity of seed sown *per* acre; the time of sowing, and of gathering the poppies; the quality of the soil; the manner of procedure in every part of the process; the quantity of oil produced, and the total of the expences. In consequence of the above proposals, in the year following (1799) Mr. P. Haak became a claimant; sent in satisfactory specimens of the oil produced, accompanied with testimonials from two respectable physicians, that upon experiments made, it fully appeared that the use of the oil was not in the least prejudicial to the human constitution; and that the oil-cakes were very wholesome and nutritive food for cattle.

The committee appointed to receive this report, not only expressed their entire satisfaction at the attestations of the physicians, but they laid before the society at large an account of the proceedings which had taken place in France, upon the interesting question concerning the noxious or salubrious qualities of the poppy-oil, in the following *Narrative*. So early as in the beginning of the seventeenth century, the oil of poppies was produced in such large quantities that it gave rise to great and lasting contentions, which rose to such a height, that the government was desired to interfere, and appease the contending parties, either by authorizing the use of this oil, or totally to prohibit the consumption, according as experiments should decide whether it contained the noxious qualities ascribed to it, or not. The opposers urged the objections already stated: they asserted, that as the capsulum or poppy-head contained juices highly narcotic, this must also be the case with its seeds; that the frequent use of the oil extracted from them exposed the consumer to all the dangerous consequences arising from too liberal use of opiates; and that they would finally obtund the faculties of the soul; that the oil was of a drying quality, for that it was upon this account it became peculiarly useful to painters: they therefore implored government to confine its use to this object. The *advocates* maintained, that no proofs existed of these pernicious effects; on the contrary, experience testified that the seeds were peculiarly nutritive both to men and cattle; they asserted that the ancient

Romans, concerning whose mental powers there could be no doubt, were accustomed to mix the oil and meal of poppy-seed with honey, and have it served up as a second course at their tables; and that it was on account of its nutritious qualities so well known to the Romans, that Virgil gives it the title of *vescum*, food, by way of pre-eminence; and that the peculiar qualities of this oil rendered it a desirable object of cultivation; that its taste was delicate and pleasant somewhat resembling that of the hazel-nut; that it continued in a fluid state, exposed to a much greater degree of cold than was required to congeal the olive-oil; that it contained a larger quantity of *fixed air*, which preserved it a longer time from being rancid; that in these particulars it not only approached the finest oil of *Provence*, but it mitigated the disagreeable taste which that oil acquired by length of time; and that the poppy-oil decidedly deserved a preference to every other oil expressed from seeds, whether nut, almond, or beech; which, though they yielded large quantities, soon became rancid: and as there was no appearance of its being pernicious in the more extensive use of it, so valuable a product ought not to be confined within the narrow bounds of the painter's use. (*Cultivation &c. in next No.*)

HEALING EFFICACY OF CARROTS.

(Continued from p. 114.)

The carrot poultice, as may be naturally inferred from what has been said of it, may be applied with singular good effect to a variety of other diseases which produce a thin, hot, acrid humor on the part, viz. ophthalmia, herpes, &c.

In old habitual ulcers the carrot poultice may be applied at any time when the sore is foul or ill conditioned; and particularly when such a sore has a dry sordes on the surface, carrot poultice applied thin over that surface and an emollient poultice over it of bread and milk, never fail to bring on quickly a discharge of good-conditioned pus. It sometimes happens when a cure is tedious, as in sores of extensive surface, or of a languid or sluggish disposition, that from the mere changing of the application for another a short time, and then renewing the former, the sore will become invigorated and more disposed to heal than before: when this appears to be the case, the intervention of a few carrot poultices will effect it, I think, better than any other application, and hasten the healing of the sore very considerably. Small obstinate sores in bad habits which resist the usual means are commonly brought into a healing state by carrot poultice alone but sometimes more readily when it is conjoined with the use of *hydrargyrus nitratus ruber*; (red precipitate) and when such a sore is become clean and florid, the cure may be completed by dressing with a little of the down of lint loosely upon, or in the sore, and the carrot poultice over it. There is no circumstance in the curative art more lightly, but more erroneously thought of than the healing of sores; this being supposed by many to depend upon the

mere circumstance of taking off one plaster and putting on another; whereas too frequently even an apparently trifling sore (not arising from any constitutional cause and consequently requiring no internal medicine) will baffle for a long time the efforts of a skilful practitioner: and indeed I am well assured, that very commonly the patient is loaded with bark, &c., to the injury of his health; whilst the sore remains the same, or is becoming worse, till a mode of dressing appropriate to that particular case is hit upon.

Carrots may be procured fit for use all the year round, and though fittest when they have but just arrived at maturity, are nevertheless sufficiently efficacious at all seasons. Or they may be collected at the proper season, and preserved in sand, till the next return of them to a perfect state.

In defect of a pestle and mortar to pound the carrots, a wooden wash-hand bowl, with an appropriately-formed pestle of wood, having its base largely convex, in order to bruise the carrots more readily, may be used in their stead.

Of late years bark and Port wine have been much more sparingly used in cases of scorbutic ulcers, &c. the carrot poultice, with an ordinary restorative diet, having been found to answer best.

In large sores that require a great quantity of the carrot poultice, the outer part of the poultice may be rather coarse, but that which applies to the sore should in all cases be a perfect pulp.

The only objectionable circumstance, that I know of, respecting the carrot poultice as an application, is its disposition to become dry, particularly when used in small quantities, as in small sores, or when the carrots are not in their most succulent, pulpy state: this circumstance, however, is completely obviated, by applying a stratum or portion of the prepared carrot upon the part affected, and laying a poultice over it of linseed flour, or bread and milk, as the nature of the case may seem to require.

I have been induced to offer these observations to the attention of the public, from a conviction of the utility that may ensue from the knowledge of the efficacy of the carrot poultice, thus prepared, being made general; which has hitherto, I have good reason to think, been chiefly confined to this vicinity; where this poultice is used as well in private practice as in the Infirmary, and with the most eminent advantage.

POSTSCRIPT.

At the time this mode was originally tried here, the usual, and I suppose I may say, the constant practice in surgery was, to apply the carrots raw as before mentioned; this manner of using them being directed in all books of surgery, and the practice of it confined chiefly to the purpose of removing the ill smell or fœtor of sores.

The circumstance that led to it was the extraordinary bad cases above related; which originated in a man who had a very large cancerous sore of the arm, which became so putrid and offensive, as to contaminate, as was supposed,

the ward: several of the patients soon after, having sores, some even of a trifling description, which quickly assumed the putrid, scorbutic disposition above described, and several others in succession.

This affair became so serious, that it was thought advisable to have a consultation of the faculty, which accordingly took place.

The result of this was, all medical and chirurgical skill having been exhausted to no purpose, that all the wards should be fresh white-washed, and fumigated; but still the evil continued with unabating fury.

At this juncture, having observed the effects of the carrot poultice used then raw, to exceed, in some degree, the rest of the various remedies employed, consisting, among others, of the fermenting poultice, so highly esteemed in cases of this nature; I proposed using a poultice made of the carrots boiled, hoping their efficacy might be increased thereby, attending particularly to the process and application myself, the result of which was, as before stated.

The good effects indeed of this treatment were so decided, that, although of sixteen cases which occurred in the course of the year 1794, ten terminated fatally, notwithstanding the most skilful application of the means then in use, there was not one, out of at least the same number of cases, equally dangerous, which presented themselves the year after, but what ended well under this new method.

Since that time this mode alone of applying the carrot poultice has been in use in the Radcliffe Infirmary, not only for the scorbutic or putrid kind of ulcer whenever it occurred, but for all untoward or foul sores of every description.

That the efficacy of the carrot poultice thus modified, is not generally known, even at this time, I can assert with some degree of confidence, having been repeatedly assured by a professional gentleman, that the carrot poultice, prepared in the old way, is still in general use, and without attributing any efficacy to it, beyond that which was originally allowed to that remedy. It has, however, lately found its way into some publications, but in a very vague and indeterminate manner.

RICHARD WALKER, Surgeon.

Oxford, Oct. 1, 1806.

* * * The above account of the efficacy of carrots brings to recollection a similar instance of cure, performed by turnips. The following is the case: "A man about 50 years of age, and who had lived irregularly, had been for several years afflicted with ulcers on both legs. They at last extended from the knee to the ankle downwards, the discharge being greater and the sores worse-conditioned along the shin-bone in front of the leg. When the writer of this article first saw the man in question he was confined to bed, and had been unable to walk across the room for several weeks. He had been successively attended by all the medical gentlemen of the town in which he lived, and had undergone several courses of medicine with a view to purify the system, but without effect: his sores were dressed with the usual

ointments. The application of turnip-poultices was suggested to him by a country woman who came into the town on market-days. Her instructions were, that he should, night and morning apply poultices of white turnips to the sores, previously bathing them with the liquor, squeezed out when the roots were boiled into pulp. The poultices were directed to be applied hot. The above directions were faithfully attended to by the patient under the inspection of the writer of this article: within the first twenty-four hours the ulcers had assumed a different appearance, and in about a week from the first application of the turnips, the ulcers were so far healed that the man was able to walk out. In a few days after the sores entirely disappeared, and the skin soon resumed its usual appearance. During this period no medicine was taken by the patient; the state of his bowels not even requiring a dose of salts."

TILLOCH.

INFANT ENDURANCE OF HARDSHIPS—Every person can observe that children possess greater warmth of blood than grown persons; and it is a fact which sometimes has been observed, that children can endure cold which would freeze an older individual. Infants have been found alive when the mothers were frozen. The following narrative from a London paper details a remarkable incident in the animal history of the human species. "On Monday morning the 19th of July, the wife of a private in the Cambridge-shire Militia, living at Haverhill, went to work in the fields, leaving a little girl, about three years and a half old, and a boy about six to take care of her. The boy, allured by his play, neglected his little charge, and when the mother came home in the evening, the child was no where to be found. To attain the desired objects, wells were emptied, ponds dragged, corn-fields explored, but all to no purpose. On Thursday morning, about six o'clock, as a young miller was moving on a common, about a quarter of a mile from the town, he heard in faint accents an infantine voice, as if calling for help—after a short search he perceived the child sitting on a small hillock, on a balk between two pieces of wheat.—The child seemed have no idea of the time that elapsed since it left its home, for being asked if it were hungry, it answered "yes, but could have no bread till its mother came home from work." In an artless strain it informed its deliverer that it had got a new gown, and was going to have a doll. By medical assistance the child is doing well."

SHEEP—The increased number of sheep in this country for a few years past, is a subject of public congratulation. There are now in the town of Hingham in Massachusetts no less than 4315 sheep, mostly half and quarter blooded Merinos. The whole number of inhabitants are about 2000, which makes more than two sheep to every inhabitant. It is calculated by the Editor of the Boston Palladium, that the same proportion exists all through that state. Messrs. Dupont at Wilmington, Delaware, have a flock of a few thou-

sand sheep of the Merino breed, and manufacture a considerable quantity of excellent superfine cloth. The Merino breed of sheep is extending over every part of Europe, and even into the remoter parts of Russia.

It appears that there are 120,000 sheep in the Shetland islands of the peculiar native breed. Their finest wool produces stockings worth two guineas per pair, and the coarsest worth only four-pence. There sheep produce two kinds of wool at the same time, the one is a hairy wool, extremely long, the other is shorter, and participates of the qualities of very fine fur. These sheep are usually plucked, not shorn. It would be a patriotic act in some of our naval men, to import the breed into this country. The introduction of these sheep, and of Vigonias from South America would prove extremely profitable to the importers.

The large heifer bred by Mr. Carrol of Carrolton, and killed in this city on the 18th February, and sold in the Marsh Market by Mr. Rusk, butcher, weighed as follows. Fore quarters, 392 & 394 lb. Hind quarters, 287 & 283, total of the carcass of merchantable meat, 1356 lb.—Tallow, 249 Hide, 113. The head and bones of this animal were very small and her proportions for improvement of the kind promising; a bad habit defeated the breeder's views, and the creature was accordingly condemned to the slaughter, although not as fat as some other extraordinary cattle. The meat was excellent; it is said it sold at an enormous price.

On the same day a large ox carcass was weighed in the Market house Philadelphia, as follows. Fore quarters 570 3-4 & 548. Hind quarters 392 & 403 1-2, total of merchantable meat, 1914 1-4 lb.—Tallow 135, Hide 148

Mr. Ralph Patchin, farmer at Brooklyn, Long Island, has a cow which gave 230 quarts of milk in one week. This is the same person who raised the extraordinary crop of Indian corn on the 19 acres of ground in 1811. He is the greatest milk-man that supplies New York; is known for his diligence and judgment in feeding and managing his cattle; and is equally remarked for judicious cultivation of his land.

The late Mr Caleb Whitefoord once observing a young lady very earnestly at work knotting fringe for a petticoat, asked her what she was doing? "knotting Sir," replied she, "Pray Mr. Whitefoord, can you knott?"—"I cannot, Madam," answered he.

Was this reply, attributed to Mr Whitefoord, a Pun or witty? A pun is defective when it is too far fetched to be quickly comprehended. This is too close almost to be perceived, and so simple Tony any-body-like that it is scarcely worth narrating of Caleb Whitefoord. As a double meaning reply and an intended quibble of signification put upon the words of the question, it wants sufficient doubtfulness to make an ordinary equivocation, and infinitely more wants the flashing distinctness of transition which constitutes true pun. It requires not less wit to make a good pun, than to make a good bull.

INTIMATION TO ALL OUR SUBSCRIBERS.—This publication has appeared a sufficient length of time to prove that its tendency is useful and its plan is good. It is not merely calculated for giving news of useful things interesting to all the community, and advancing the cause of public and private unostentatious virtue, but it is original in its comprehension, and devised to be an encyclopædia of the active, improving, progressive knowledge of the day and time in which the subscriber lives. Life and health and every human possession, right, and resource, being precarious, the Editor has judged proper to take out a copy-right of the National Museum and Weekly Gazette for its supporters, as proportionate proprietors. It has been frequently asserted to the Editor, that nothing but a work decidedly given to party, would succeed in this city; that ruin would be the result of any attempt to establish a work whose only recommendation should be the merit of the intentions, the talents evinced, or the utility of the object. He is not of that opinion even now, but to be sanguine of success, a man of the necessary qualifications must have fewer difficulties placed in his way, and fewer disappointments and crosses to contend with than have been his lot to the present time. He has and always will deem it his duty to do his part. The most mortifying earthly ruin is preferable to dereliction from principle. What industry cannot control; he must bend his head and submit to. The publication will prosper, if supported by the liberality of subscribers.

Upwards of 40,000 children are now instructed in England by the national society. This is another proof of the prince regent's declaration that "Joseph Lancaster had done more good than any man in the kingdom,"—*Statesman*.

Transposition of Musical Clefs, and New Method of figuring Thorough Bass.

In an advertisement for publishing the vocal works of Handel by subscription, the editor, Dr. John Clark, of Cambridge, announces his intention of transporting the several tenor parts into the treble clef; a plan which, if generally followed, would much facilitate the practice of music. It therefore gives me much pleasure to find that the doctor does not stand single in his ideas on this subject, but that the same plan is adopted in *Power's Selection of Irish Melodies*, a work lately published in numbers in London, Edinburgh, and Dublin, the words by Thomas Moore Esq. and the musical accompaniments by Sir John Stevenson. The diversity of the base and treble clefs depends upon an obvious reason; the one being intended as a continuation of the other, as appears by their inosculating in the note *c*, which stands midway between them.—(See Fig. No. 1.)

But the chief object of the tenor clefs seems to be, that of giving a position for the notes upon the staff, by which

the inconvenience of many lesser lines is avoided; but if this object can be equally well attained by means of the treble, the trouble of learning the others must be altogether gratuitous. Sir John Stevenson writes his tenor parts in the treble clef, with a direction in the margin, "to be sung eight notes lower," which is very easily done; and according to which, the notes of the counter-tenor are removed just one degree higher.—(See Fig. Nos. 2 and 3.)

As this, however, is, in reality, giving us a second treble clef an octave lower than the common one, I would recommend writing it in the way pointed out in Fig. No. 4, as a more ready way of distinguishing it, than verbal direction.

Having such respectable authority in behalf of one innovation, I shall venture to propose another of my own, relating to the figuring of thorough bass, which I submit to the judgment of musicians. According to the received system, a number of chords, having totally different roots, are represented by the same figures, which throws considerable difficulties in the way of such novices as I am. I would, therefore, propose to signify the root, or fundamental bass, by its appropriate letter of the alphabet, and then place the figures over such letter, implying that notes in the treble hand were to be reckoned from the root, and not from the bass note, except when both were the same: a single example will sufficiently illustrate my meaning. Instead of designating the chords, as in Fig. No. 5, I would write the same chords as shown in No. 6; a method which, I conceive, would be attended with many advantages.

The student would always know the root at first sight, which would greatly expedite his advancement both in theory and practice; the several inversions would sufficiently appear from the base notes, and the figuring of each chord would be invariable. It is true I have confessed myself a novice in this branch of science; but a novice being perhaps the best judge of what impedes his own progress, may therefore be able to give a good hint for its removal, which may prove of signal utility; for, be it remembered, that the clearer the method by which the scholar is instructed, the sooner will the man of science be formed.

R.

Milford, Wales.

No. 1. 

2.  3.  4. 

5.  6. 

Figures for No. 5: 7 6 4 4 6 5 3 2

Figures for No. 6: 7 G G G